

Amendments to the Claims

Claims 1-39 (Cancelled).

40. (Currently amended) A method for controlling the texture of a cast material, comprising the steps of:

providing a cast material selected from the group consisting of high purity aluminum, high purity titanium, high purity copper, high purity tantalum, high purity nickel, high purity silver, high purity gold, high purity platinum, a titanium alloy, a copper alloy, a tantalum alloy, a nickel alloy, a silver alloy, a gold alloy, a platinum alloy, an alloy consisting essentially of aluminum and copper, and aluminum alloyed with at least one of tantalum, titanium, silver, gold, platinum, and nickel;

heating the cast material and without additional heating events, treating the cast material by homogenization, hot-forging to produce a disk ~~disc~~; and solutionizing;

removing portions of the disk ~~disc~~ to produce a billet;

defining equal channel angular extrusion routes for defining predetermined shear planes and crystallographic directions in the alloy;

selecting at least one route from the defined routes for processing the alloy;

processing the billet by performing at least one pass through the selected at least one route;

after the processing, intermediate annealing the alloy;

after the intermediate annealing, performing at least one additional pass through the selected at least one route; and

post-extrusion processing the alloy to create a specific texture, a uniform grain size and a high texture strength for the alloy.

41-49. (Cancelled)

50. (Previously presented) The method of claim 40 wherein the intermediate annealing comprises at least one of a) recovery annealing, B) annealing at the beginning temperature of static recrystallization, and C) full static recrystallization annealing.

51. (Previously presented) The method of claim 40 wherein the post-extrusion processing comprises performing a post-extrusion annealing treatment, the post-extrusion annealing comprising at least one of a) recovery annealing, B) annealing at the beginning temperature of static recrystallization, and C) full static recrystallization annealing.

Claims 52-53 (Cancelled).

54. (New) A method for controlling the texture of a cast material, comprising:
providing a cast material;
performing a preliminary treatment comprising hot forging the material to produce a disk;
removing portions of the disk to produce a billet;
defining equal angular extrusion routes for defining predetermined shear planes and crystallographic directions in the material;

selecting at least one route from the defined routes; and
subjecting the billet to at least one pass through the selected routes.

55. (New) The method of claim 54 wherein the cast material is selected from the group consisting of high purity aluminum, high purity titanium, high purity copper, high purity tantalum, high purity nickel, high purity silver, high purity gold, high purity platinum, a titanium alloy, a copper alloy, a tantalum alloy, a nickel alloy, a silver alloy, a gold alloy, a platinum alloy, an alloy consisting essentially of aluminum and copper, and aluminum alloyed with at least one of tantalum, titanium, silver, gold, platinum, and nickel.

56. (New) The method of claim 54 wherein the preliminary treatment further comprises subjecting the cast material to homogenizing prior to the hot forging.

57. (New) The method of claim 56 wherein the preliminary treatment utilizes a single heating of the cast material.

58. (New) The method of claim 54 wherein the at least one pass through the selected routes is a plurality of passes, and further comprising intermediate annealing between at least some of the passes.

59. (New) The method of claim 58 wherein the intermediate annealing comprises recovery annealing.

60. (New) The method of claim 58 wherein the intermediate annealing comprises recrystallization annealing at the beginning temperature of static recrystallization.

61. (New) The method of claim 58 wherein the intermediate annealing comprises recrystallization annealing at a temperature above the beginning temperature of static recrystallization.

62. (New) The method of claim 54 wherein the preliminary treatment further comprises performing a solutionizing treatment.

63. (New) A method for controlling the texture of a cast material, comprising the steps of:

forging a material selected from the group consisting of high purity aluminum, high purity titanium, high purity copper, high purity tantalum, high purity nickel, high purity silver, high purity gold, high purity platinum, a titanium alloy, a copper alloy, a tantalum alloy, a nickel alloy, a silver alloy, a gold alloy, a platinum alloy, an alloy consisting essentially of aluminum and copper, and aluminum alloyed with at least one of tantalum, titanium, silver, gold, platinum, and nickel, the forging producing a forged disk;

removing portions of the disk to produce a billet; defining equal channel angular extrusion routes for defining predetermined shear planes and crystallographic directions

processing the billet by performing a plurality of passes through at least one route of equal channel angular extrusion; and

recovery annealing the extruded billet at a temperature range and a time period determined for the material for obtaining substantially uniform grain size, global microstructure and texture.